A

NAME Alex Lovejoy OFF CL bL PERIOD 3

PHYSICS 2 - QUIZ 3

1. An object 1 inch high (4 boxes) is 2 inches (8 boxes) from a convex lens of 1 inch (4 boxes) focal length. Find the image distance and image size mathematically.

$S_o = 1''$ $d_o = 2''$ $f = 1''$

$\frac{1}{d_o} + \frac{1}{d_i} = \frac{1}{f}$

$\frac{1}{d_i} = \frac{1}{f} - \frac{1}{d_o}$

$\frac{1}{d_i} = 1'' - \frac{1}{2''}$

$\frac{1}{d_i} = \frac{1}{2''}$ $\boxed{d_i = 2''}$

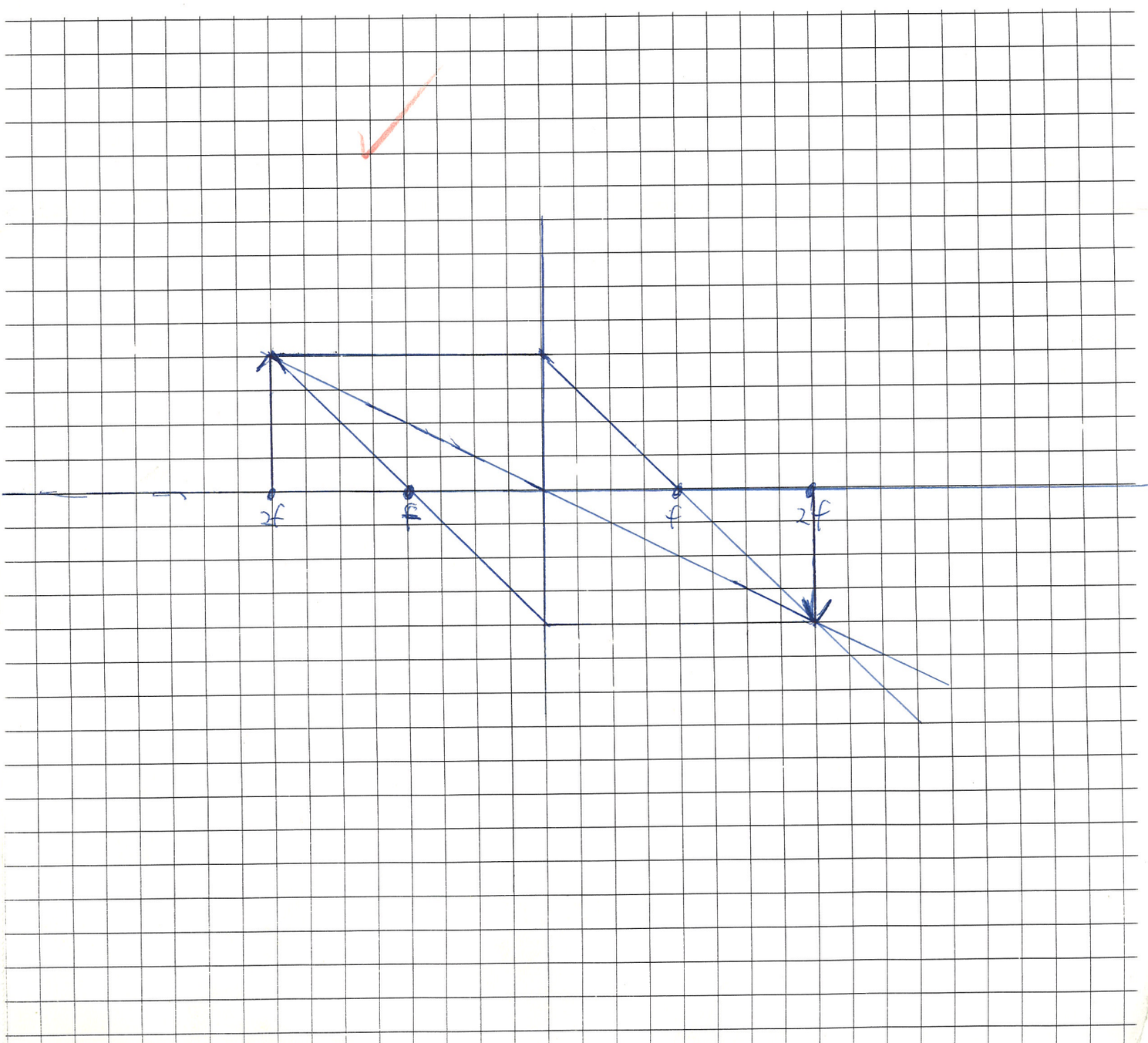
$\frac{S_o}{S_i} = \frac{d_o}{d_i}$

$\frac{S_i}{S_o} = \frac{d_i}{d_o}$

$S_i = \frac{d_i S_o}{d_o}$

$S_i = \frac{(2'')(1'')}{2''} = 1''$ $\boxed{S_i = 1''}$

2. Find the answers to 1. above graphically (neatness counts!).



Quiz 1 WAVES

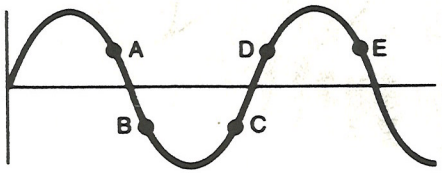
20

1. The maximum displacement of a particle from its rest position due to wave motion is called (1) amplitude (2) frequency (3) period (4) wavelength

2. A periodic wave that has a frequency of 5.0 hertz and a speed of 10. meters per second has a wavelength of (1) 50. m (2) 2.0 m (3) 0.50 m (4) 0.20 m

$\lambda = \frac{v}{f}$

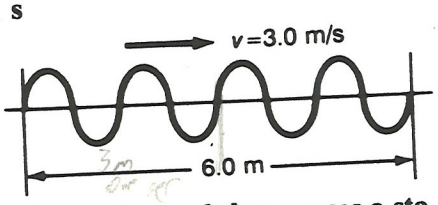
3. On the wave train shown at the right, which point is in phase with point *A*?
(1) *E* (3) *C*
(2) *B* (4) *D*



4. What generally occurs when a pulse reaches a boundary between two different media? (1) The entire pulse is reflected. (2) The entire pulse is absorbed. (3) The entire pulse is transmitted. (4) Part of the pulse is transmitted, part reflected, and part absorbed.

5. A periodic wave has a frequency of 10 hertz. The period of the wave is (1) 1 s (2) 0.1 s (3) 0.01 s (4) 0.001 s

6. A train of waves is moving along a string at 3.0 meters per second, as shown at the right. The wavelength is (1) 6.0 m (2) 2.0 m (3) 1.5 m (4) 0.75 m



2 Hz

7. As an ambulance with siren blaring approaches and then passes a stationary observer, the frequency of the sound heard by the observer (1) increases, then decreases (2) decreases, then increases (3) continually increases (4) continually decreases

8. As the frequency of a vibrating spring increases, its period of vibration (1) decreases (2) increases (3) remains the same

9. As the amplitude of a wave increases, the energy transported by the wave (1) decreases (2) increases (3) remains the same

10. As a wave travels into a medium in which its speed increases, its wavelength (1) decreases (2) increases (3) remains the same

$v = f\lambda$

11. What is the frequency of a water wave that has a speed of 0.4 meter per second and a wavelength of 0.02 meter? (1) 10 Hz (2) 20 Hz (3) 0.008 Hz (4) 0.05 Hz

$f = \frac{v}{\lambda}$

12. If the velocity of the wave remains constant, while the frequency is doubled, the wavelength is (1) halved (2) doubled (3) unchanged (4) quartered

13. A student blows air across the top of a soda bottle and produces a note. This is an example of (1) refraction (2) interference (3) diffraction (4) resonance

14. Total destructive interference of two periodic waves traveling in the same medium can occur if the waves have a phase difference of 180° and have (1) equal frequencies (2) different amplitudes